【CLAIMS】

【Claim 1】

~~A method of generating a reconstructed block,comprising:~~

~~deriving an intra prediction mode of a prediction unit;~~

~~determining a size of a current block using transform size information;~~

~~generating a prediction block of the current block according to the intra prediction mode;~~

~~generating a residual block of the current block according to the intra prediction mode; and~~

~~generating a reconstructed block of the current block using the prediction block and the residual block,~~

~~wherein the size of the current block is equal to or smaller than a size of the prediction unit, and the sizes of the prediction unit, the residual block and the reconstructed block are equal to a size of a transform unit.~~ An apparatus for encoding an image in intra prediction, comprising:

an intra prediction unit generating a prediction block using an intra prediction mode;

a transform unit transforming residual signals generated using an original block and the prediction block to generate a transformed block;

a quantization unit determining a quantization parameter and quantizing the transformed block using a quantization matrix and the quantization parameter to generate a quantized block;

a scanning unit determining a scan pattern and applying the scan pattern to the quantized block to generate one-dimensional coefficient information; and

an entropy coding unit entropy-coding the one-dimensional coefficient information and the intra prediction mode,

wherein the residual signals are transformed in transform unit, DST-based integer transforms are used for transforming the residual signals if the size of the transform unit is smaller than a predetermined size, and DCT-based transforms are used if the size of the transform unit is equal to or larger than the predetermined size,

wherein a differential quantization parameter is generated by subtracting a quantization parameter predictor from the quantization parameter, and is entropy-coded, and

wherein if two or more quantization parameters are available among a left quantization parameter, an above quantization parameter and a previous quantization parameter of a current coding unit, the quantization parameter predictor is generated using first two available quantization parameters among the left quantization parameter, the above quantization parameter and the previous quantization parameter, and if only one quantization parameter is available, the available quantization parameter is set as the quantization parameter predictor.

【Claim 2】

~~The method of claim 1, wherein the transform size information includes one or more split_tu_flags.~~ The apparatus of claim 1, wherein if the left and above quantization parameters are available, an average of the left and above quantization parameters is set as the quantization parameter predictor.

【Claim 3】

~~The method of claim 1, wherein deriving an intra prediction mode of a prediction unit comprises:~~

~~constructing MPM group which is comprised of three intra prediction modes using a left intra prediction mode and an above intra prediction mode;~~

~~determining whether a mode group indicator indicates the MPM group or not;~~

~~setting a intra prediction mode of the MPM group specified by a prediction mode index as the intra prediction mode of the prediction unit if the mode group indicator indicates the MPM; and~~

~~determining the intra prediction mode of the prediction unit by comparing the prediction mode index with the three intra prediction modes of the MPM group if the mode group indicator indicates the MPM.~~

The apparatus of claim 1, wherein if only one of the left and above quantization parameters is available, the average of the available quantization parameter and the previous quantization parameter is set as the quantization parameter predictor.

【Claim 4】

~~The method of claim 3, wherein if one of the left intra prediction mode and the above intra prediction mode is available, the MPM group is comprised of the available intra prediction mode and two additional intra prediction mode.~~The apparatus of claim 1, wherein the quantization parameter is generated per quantization unit, and a minimum size of the quantization unit is adjusted per picture.

【Claim 5】

~~The method of claim 4, wherein the two additional intra prediction modes are determined according to the available intra prediction mode.~~The apparatus of claim 1, wherein if the size of the transform unit is equal to or smaller than 8×8, the scan pattern is determined among a diagonal scan, a vertical scan and a horizontal scan based on the intra prediction mode.

【Claim 6】

~~The method of claim 5, wherein if the available intra prediction mode is a directional intra prediction mode, DC mode and planar mode are set as the two additional intra prediction modes.~~The apparatus of claim 1, wherein if the size of the transform unit is larger than 8×8, the scan pattern is a diagonal scan.

【Claim 7】

~~The method of claim 1, wherein generating a residual block of the current block according to the intra prediction mode comprises:~~

~~entropy decoding the encoded residual signals to generated quantized coefficient information;~~

~~inversely scanning the quantized coefficient information to generate a quantized block using an inverse scan pattern; and~~

~~inversely quantizing and transforming the quantized block using quantization parameter and an inverse transform,~~

~~wherein a type of the inverse transform is determined by the size of the transform unit.~~

The apparatus of claim 1, wherein if the size of the transform unit is larger than a predetermined size, the quantized block is divided into plural subsets and the scan pattern is applied to significant flags, coefficient signs and coefficient levels of each subset.

【Claim 8】

~~The method of claim 7, wherein the inverse scan pattern is determined based on the size of the transform unit and the intra prediction mode.~~ The apparatus of claim 7, wherein the subsets are scanned according to the scan pattern applied to the significant flags, the coefficient signs and the coefficient levels.

~~【Claim 9】~~

~~The method of claim 7, wherein the inverse scan pattern is selected among a diagonal scan, a vertical scan and a horizontal scan.~~